

# **AIR-CUSHIONED BED WITH A BUILT IN AIR BLOWER**

## **1 BACKGROUND OF THE INVENTION**

### **2 1. Field of the Invention**

3           The present invention relates to an air blower inside an air-cushioned  
4 bed, and more particularly to a built-in air blower inside the bed to inflate or  
5 deflate the air-cushioned bed.

### **6 2. Description of Related Art**

7           A conventional air-cushioned bed has a large air cell with air contained  
8 therein. Due to the cushion effect provided by the air in the air cell, the user lying  
9 on the air-cushioned bed is able to have excellent support. In order to facilitate  
10 the inflation and deflation of the air cell, the air cell is provided with an air nozzle  
11 communicating the interior of the air cell with surrounding air. The user is able to  
12 use an air compressor or the like to inflate or deflate the air cell via the air nozzle.

13           However, it is well known in the art that even if the size of the air  
14 compressor is small, it is hard for the user to prepare a storing space for the air  
15 compressor. Furthermore, because airbeds tend to be used infrequently, such as  
16 once or twice in the summer, it is easy for the compressor to become hidden from  
17 view by other things stored.

18           To overcome the shortcomings, the present invention tends to provide an  
19 improved air-cushioned bed to mitigate the aforementioned problems.

## **20 SUMMARY OF THE INVENTION**

21           The primary objective of the present invention is to provide an improved  
22 air-cushioned bed with a built-in air blower so that additional space otherwise  
23 needed for storing the air blower is saved.

Another objective of the present invention is that the air blower is detachably received in a container such that either inflation or deflation of the air cell of the air-cushioned bed is easily accomplished.

Other objects, advantages and novel features of the invention will become more apparent from the following detailed description when taken in conjunction with the accompanying drawings.

#### BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a schematic perspective view showing that an air blower is received in an air-cushioned bed of the present invention;

Fig. 2 is an exploded perspective view showing the relation between the air blower and a casing;

Fig. 3 is a schematic side plan view in partial section to show relationship between the position plate and the air blower inside the casing;

Fig. 4 is a schematic side plan view showing that the air blower is securely clamped by the position plate inside the casing;

Fig. 5 is a schematic side plan view showing the relationship between the position plate and the casing; and

Fig. 6 is a perspective view showing that the air blower is securely positioned inside the casing.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

With reference to Fig. 1, the air-cushioned bed (10) of the present invention includes a concave space (11) defined in a side face of the air-cushioned bed (10), a casing (20) and an air blower (30) received inside the casing (20).

1           With reference to Fig. 2, it is noted that the air blower (30) is capable of  
2   sucking air from surrounding atmosphere into an inlet (31) and blowing air out  
3   of the air blower (30) from an outlet (32). The inlet (31) has a first annular flange  
4   (311) and the outlet (32) has a second annular flange (321). Further the air  
5   blower (30) has a switch (33) mounted on an outer surface of the air blower (30)  
6   to control activation and deactivation of the air blower (30). The internal  
7   structure of the air blower (30) is not the subject of the application such that  
8   detailed description thereof is omitted.

9           The casing (20) has a U-shaped cross section and includes a body (21), a  
10   through hole (22) defined in a side face of the body (21), a cover (23) pivotally  
11   connected to a circumference defining the through hole (22) to optionally plug  
12   the through hole (22), a sliding seat (24) formed on an inner side face of the body  
13   (21) and opposite to the through hole (22), and a position plate (25) slidable with  
14   respect to the sliding seat (24).

15           The cover (23) preferably is made of a resilient material so that the cover  
16   (23) is deformable when receiving a force. Besides, the cover (23) has a groove  
17   (231) defined in an upper portion thereof so that when the cover (23) is receiving  
18   a force, the cover (23) is folded along the groove (231) to open the through hole  
19   (22).

20           The sliding seat (24) includes two oppositely formed ledges (241) each  
21   having a notch (2411) defined therein, a recessed area (242) centrally formed on  
22   the sliding seat (24) and a limiting groove (243) defining in a top portion of a  
23   bottom face defining the recessed area (242). Two tracks (244) respectively  
24   formed between one of the two ledges and a top face of the sliding seat (24).

1           The position plate (25) includes two oppositely formed side walls (251)  
2 each having a position ear (2511) integrally extending out therefrom to  
3 correspond to the notches (2411) and a truncated edge (2512) formed on a lower  
4 portion of the side wall (251), a cap (252) formed between the two side walls  
5 (251), a U-shaped cut (253) defined in a lower portion of the position plate (25)  
6 to form therein a tongue (254) which has two bosses (2541) oppositely formed  
7 on a rear side face of the tongue (254) to correspond to the limiting groove (243).  
8 It is noted that the position plate (25) has two extensions (255) oppositely formed  
9 on the position plate (25) to correspond to the tracks (244) of the sliding seat  
10 (24).

11           It is to be noted that the body (20) has a flange (200) which is to be  
12 securely connected to a side face of the air-cushioned bed by any appropriate  
13 method known in the art. Therefore, when the body (21) is received in the  
14 concave space (11) (as shown in Fig. 1), the connection between the flange (200)  
15 of the body (21) and the side face of the air-cushioned bed (10) is air tight and the  
16 through hole (22) communicates with the interior of the air-cushioned bed.

17           With reference to Figs. 3 and 4 and still taking Fig. 2 for reference, after  
18 the air blower (30) is received in the body (21) and after the position plate (25) is  
19 connected to the sliding seat (24), the movement of the two extensions (255)  
20 along the corresponding tracks (244) allows the position plate (25) to slide into  
21 the body (21). Furthermore, the sliding seat (24) is so defined that when the  
22 position plate (25) is moved downward into the body (21), the tongue (254) is  
23 slightly abutted by the bottom face of the recessed area (242) due to the bosses  
24 (2541). Due to the design of the recessed area (242), as the position plate (25)

1 continues to move downward into the body (21), the tongue (254) will be slightly  
2 tilted. In the meantime, while the position plate (25) is moving downward into  
3 the body (21), the truncated edge (2512) engages with the first annular flange  
4 (311) and gradually pushes the air blower (30) to allow the second annular flange  
5 (321) to be received in the through hole (22). In order to accomplish a secure  
6 engagement of the second annular flange (321) and an inner face defining the  
7 through hole (22), the through hole (22) has a diameter slightly larger than that of  
8 the second annular flange (321) such that after the second annular flange (321) is  
9 received in the through hole (22) due to the push of the truncated edge (2512) to  
10 the first annular flange (311) of the air blower (30), the engagement  
11 therebetween is secured. After the position plate (25) is moved to reach a bottom  
12 face of the body (21), the cap (252) engages with the first annular flange (311)  
13 and the two position ears (2511) of the two side walls (251) are received in the  
14 corresponding notches (2411) to therefore position the air blower (30) inside the  
15 body (21), as shown in Fig. 5. It is to be noted that after the air blower (30) is  
16 securely received inside the body (21) and activated, the air flow from the air  
17 blower (30) moves the cover (23), which is shown in the dashed lines shown in  
18 Fig. 3. However, when the bed is to be deflated, the operator reverses the air  
19 blower (30) and still uses the cap (252) to position the air blower (30) inside the  
20 body (21). Because the inlet (31) is now in alignment with the cover (23), in  
21 order to suck the air from the bed, the operator has to move the cover (23)  
22 upward to allow the inlet (31) to communicate with the interior of the bed such  
23 that air is able to be sucked from the bed.

24 With reference to Fig. 6 and still using Fig. 5 for reference, after the air

1 blower (30) is securely received in the body (21), the air blower (30) is able to  
2 inflate the air-cushioned bed (10) (in Fig. 1). It is noted that when the air blower  
3 (30) is inflating the air-cushioned bed (10), the cover (23) is blown and folded at  
4 the groove (231) so that air is able to be forced into the air-cushioned bed (10).

5           However, when the air-cushioned bed (10) is to be deflated, the user may  
6 force the two side walls (251) (as shown in Fig. 5) to move toward each other  
7 such that the position ears (2511) may leave the limitation of the notches (2411).  
8 Then the user may pull the position plate (25) upward to release the air blower  
9 (30). After the air blower (30) is released and removed from the casing (20), the  
10 user may reversibly place the air blower (30) back into the casing (20). That is,  
11 the inlet (31) will be facing the through hole (22) and the outlet (32) will be  
12 facing the sliding seat (24). Thereafter, the secure process to the air blower (30)  
13 by the position plate (25) is the same as what is disclosed above. The activation  
14 of the air blower (30) sucks air out of the air-cushioned bed (10) to rapidly  
15 deflate the air-cushioned bed (10).

16           In conclusion, with the casing (20) received in the concave space (11) in  
17 the air-cushioned bed (10) and the air blower (30) detachably received in the  
18 casing (20), the user can easily store the air blower (30) without occupying any  
19 further space than that occupied by the air-cushioned bed. Because the air blower  
20 (30) is secured by the position plate (25) inside the body (21) of the casing (20),  
21 the user need not worry that the air blower (30) will be lost due to movement of  
22 the bed, or buried under piles of clothes around the bed.

23           It is to be understood, however, that even though numerous  
24 characteristics and advantages of the present invention have been set forth in the

1 foregoing description, together with details of the structure and function of the  
2 invention, the disclosure is illustrative only, and changes may be made in detail,  
3 especially in matters of shape, size, and arrangement of parts within the  
4 principles of the invention to the full extent indicated by the broad general  
5 meaning of the terms in which the appended claims are expressed.